

SECTION BY SECTION
H.R. 2687, the NASA AUTHORIZATION ACT OF 2013

Section 1. Short Title; Table of Contents

This Act may be cited as the “National Aeronautics and Space Administration Authorization Act of 2013”.

Section 2. Definitions

This section would provide relevant definitions within the Act.

TITLE I - AUTHORIZATION OF APPROPRIATIONS

Sec. 101. Fiscal Year 2014.

This section authorizes NASA at levels in line with the Budget Control Act of 2011.

Sec. 102. Fiscal Year 2015.

This section authorizes NASA at levels in line with the Budget Control Act of 2011.

Section 103. Budget Control

This section states that the amounts authorized are consistent with the Budget Control Act of 2011 (P.L. 112-25). This section states that if P.L. 112-25 is repealed or replaced with an Act that increases allocations, there are authorized to be appropriated such sums, in order of priority: one third for the International Space Station (ISS); one third for the Space Launch System (SLS); and one third divided evenly between Commercial Crew Development activities and the Orion crew capsule (Orion).

TITLE II - HUMAN SPACE FLIGHT

Subtitle A – Exploration

Sec. 201 – Space Exploration Policy.

Section 201 supports a human exploration program that is not dependent on achieving milestones by fixed dates, and an exploration technology development program to enable lunar human and robotic operations. It supports expanding human presence beyond low-Earth orbit. This section states that Congress remains committed to ensuring that authorized budgets for the human space flight program maintain NASA’s high safety standards. This section states that exploration deeper into the solar system should be the core mission of NASA. Congress strongly supports the development of the SLS and Orion as enabling elements for human exploration, advanced scientific missions, and national security priorities beyond low-Earth orbit. This section further states that it is the policy of the United States that the development of capabilities and technologies necessary for a human mission to Mars and beyond is the top priority of NASA’s human space flight and technology development programs. This section also requires the Administrator to establish a program to develop a sustained human presence on the Moon and

the surface of Mars. Section 201 directs the Administrator to focus on the milestone of launching the first crewed mission of Orion fully integrated with SLS as close to 2020 as possible. It adds language to the law creating the milestone of enabling human to land on the Moon. This section also adds language to title 51 regarding the acceleration of development of capabilities to enable a human exploration mission to the surface of Mars and beyond through the prioritization of those technologies and capabilities best suited for such a mission in accordance with the Mars Human Exploration Roadmap. Finally, this section states that non-United States human space flight capabilities should only be used as a contingency when no domestic commercial provider is available.

Sec. 202 - Stepping Stone Approach to Exploration.

This section requires the development of a Mars Human Exploration Roadmap defining the capabilities and technologies necessary to extend human presence to the surface of Mars, providing a process for the evolution of the capabilities of the fully integrated Orion with SLS, and describing the capabilities and technologies that could be demonstrated, or research data that could be gained through the utilization of the ISS. The roadmap describes a framework for international cooperation and a process for utilizing private companies. The roadmap must be transmitted the Congress, updated at least every four years, and include addenda from the NASA Advisory Council and Aerospace Safety Advisory Panel, each with a statement of review.

Sec. 203 – Space Launch System.

This section contains findings regarding the importance of the SLS and describing its intended uses. This section also contains findings describing the test flight required by the 2010 Authorization Act and stating that the schedule for this demonstration is subject to appropriations. This section requires a progress report on the status of SLS and its integration with Orion. If the Administrator determines that either required test flight will not occur before the dates specified, the progress report must include an estimate of additional funds necessary to meet these goals. This section requires the Administrator to report on the effort and budget required to enable and utilize a cargo variant of the 130 ton SLS configuration.

Sec. 204 - Orion Crew Capsule.

Section 204 states that the Orion must meet the practical needs and the minimum capability requirements described in law. It requires a report to Congress detailing those components and systems of Orion which ensure it is in compliance with the law and the expected date that Orion will be available to transport crew and cargo to the ISS, as well as certifying that the requirements of the law will be met in time for the first crewed test flight in the year 2021.

Sec. 205. Advanced Booster Competition

This section requires the Associate Administrator of NASA to transmit a report to Congress describing the estimated total cost of an advanced booster for SLS and detailing any reductions or increases to development costs of SLS that may result from conducting a competition for an advanced booster. It further directs NASA to conduct a full and open competition for an advanced booster for SLS if the Associate Administrator reports reductions in the required report.

Subtitle B – Space Operations

Sec. 211 – Findings.

This section contains findings regarding the importance of ISS and the need to acquire an operational domestic commercial crew transportation service by the year 2017.

Sec. 212 – International Space Station (ISS).

Section 212 states that it is the policy of the United States that the ISS be utilized to the maximum extent practicable for the development of capabilities and technologies needed for the future of human exploration beyond low-Earth orbit. This section requires the Administrator to take all necessary steps to support the operation and full utilization of the ISS and seek to minimize the operating costs of the ISS. It states that reliance on foreign carriers for crew and cargo is unacceptable and the Nation's human space flight program must acquire the capability to launch American astronauts on American rockets from American soil as soon as possible. This section reaffirms Congress' commitment to development of a commercially developed launch and delivery system to the ISS for crew missions. This section reaffirms that NASA shall make use of the United States' commercially provided ISS crew transfer and crew rescue services to the maximum extent practicable. Section 212 also reaffirms that NASA shall pursue means to maximize ISS logistics capabilities, reduce risks to ISS systems sustainability, and minimize United States operations costs relating to the ISS. This section amends the law to state that it is the policy of the United States to maintain an uninterrupted capability for human space flight and operations in low-Earth orbit and beyond as an essential instrument of national security and the capability to ensure continued United States participation and leadership in the exploration and utilization of space. This section requires the Administrator to submit a report to Congress on the feasibility of extending the operation of the ISS. This section also requires the Director of OSTP to develop and transmit to Congress a strategic plan for conducting research in the physical and life sciences and related technologies on the ISS through at least 2020. Finally, this section requires the Comptroller General to submit a report to Congress on the progress of the chosen not-for profit entity for management of the National Laboratory.

Sec. 213 - Commercial Crew Report.

This section requires the Administrator to create contingencies in the event that sequestration continues to reduce NASA's budget. It requires the Administrator to transmit a report with five distinct options for the final stage of the Commercial Crew program: a strategy that assumes an appropriation of \$500 million over three years; a strategy that assumes an appropriation of \$600 million over three years; a strategy that assumes an appropriation of \$700 million over three years; a strategy that assumes an appropriation of \$800 million over three years; and a strategy that has yet to be considered previously, but that NASA believes could ensure the flight readiness date of 2017 for at least one provider or decrease the program cost. Each strategy shall include the contracting instruments NASA will employ to acquire the services in each phase of development or acquisition, the number of commercial providers NASA will include in the program, and the estimated flight readiness date in each scenario.

Sec. 214 – Flight Readiness Demonstration.

Section 214 requires NASA to carry out its flight readiness demonstration by December 31, 2017. This section requires a quarterly report to Congress providing the status of the Commercial Crew development program and a Statement of Flight Readiness. NASA must notify Congress if a partner misses a milestone. The Administrator must provide, and begin implementation of, a new acquisition strategy with the goal of ensuring that one company will be prepared to provide crew transport services by December 31, 2017.

Sec. 215 – Certification Products Contract Phase Two.

This section states that phase two of the Certification Products Contract and any subsequent actions taken by the Administration under the Commercial Crew program shall be executed under a cost-type contract specified by Federal Acquisition Regulations in accordance with the 2012 Annual Report of the Aerospace Safety Advisory Panel, unless the Administrator has determined that deviating from the recommendations in the report is in the best interest of the program. If such a determination is made, the Administrator must submit this determination and a justification to Congress as part of the required quarterly report on Flight Readiness Demonstration. The Aerospace Safety Advisory Panel must report to Congress on any deviation within 45 days of notification.

Sec. 216 – Space Communications.

This section directs the Administrator to develop a plan for updating NASA’s space communications architecture for both low-Earth orbit operations and deep space exploration so that it is capable of meeting NASA’s needs over the next twenty years. The plan shall include life-cycle cost estimates, milestones, estimated performance capabilities, and five year funding profits. The plan shall also include (but is not limited to) a description of: projected Deep Space Network requirements for the next twenty years; upgrades needed to support Deep Space Network requirements; cost estimates for the maintenance of existing Deep Space Network capabilities; projected Tracking and Data Relay Satellite System requirements for the next twenty years; cost and schedule estimates to maintain and upgrade the Tracking and Data Relay Satellite System to meet projected requirements; and steps the Administration is taking to mitigate threats to electromagnetic spectrum use.

TITLE III – SCIENCE

Subtitle A – General

Sec. 301 - Science Portfolio.

This section amends the law to state that a balanced and adequately funded set of activities contributes to a robust and productive science program that serves as a catalyst for innovation and discovery (language previously did not contain “discovery”). This section states that unless otherwise directed by Congress, NASA shall take into account the current decadal surveys from the National Academies when submitting the President’s budget request to Congress.

Sec. 302 - Assessment of Science Mission Extensions.

Section 302 amends the law to require biennial reviews within each of the Science divisions to assess the benefits of extending the date of termination of data collection for missions that

exceed their planned mission lifetime. This section requires consultation by relevant agencies for missions with an operational component. It states that if a mission is extended by a consultation, the full costs of the extension shall be paid for by the operational agency. This section requires a report to Congress detailing the assessment required.

Sec. 303 – Radioisotope Thermoelectric Generators.

This section requires the Administrator to conduct and transmit to Congress an analysis of NASA requirements for radioisotope power system material needed to carry out high priority robotic missions in the solar system and other surface exploration activities beyond low-Earth orbit, as well as the risks to NASA missions in meeting those requirements due to a lack of adequate domestic production of radioisotope power system material.

Sec. 304. Congressional Declaration of Policy and Purpose.

This section would amend current law to add the search for life's origin, evolution, distribution, and future in the Universe to the list of objectives of NASA's activities.

Subtitle B – Astrophysics

Sec. 311 - Decadal Cadence.

This section states that the Administrator shall ensure a steady cadence of large, medium, and small missions when following the guidance provided by the decadal surveys.

Sec. 312 – Extrasolar Planet Exploration Strategy.

This section requires the Administrator to contract with the National Academies to develop a strategy for the study and exploration of extrasolar planets that would provide a foundation for NASA roadmaps, strategic plans, and activities related to exoplanet research and exploration.

Sec. 313 – James Webb Space Telescope.

Section 313 states that it is the sense of Congress that the James Webb Space Telescope program is significant to our understanding of the history of the universe and should continue to receive priority of funding in accordance with the recommendations of the most recent decadal survey.

Sec. 314 – Wide-Field Infrared Survey Telescope.

This section requires the Administrator to ensure that the development of the Wide-Field Infrared Survey Telescope continue while the James Webb Space Telescope is completed.

Sec. 315 – National Reconnaissance Office Telescope Donation

Section 315 requires the Administrator to report to Congress on NASA's plan for developing the Wide-Field Infrared Survey Telescope including a plan for the Wide-Field Infrared Survey Telescope 2.4, which includes the donated 2.4-meter aperture National Reconnaissance Office telescope.

Subtitle C –Planetary Science

Sec. 321 – Decadal Cadence.

This section states that when following the guidance provided by the decadal surveys, the Administrator shall ensure that NASA carries out a balanced set of programs in accordance with the priorities established in the most recent decadal survey, including: a Discovery-class mission every 24 months; a New Frontiers-class mission every 60 months; and a Flagship-class mission at least once every decade thereafter, starting with a Europa mission with a goal of launching by 2021.

Sec. 322 – Near Earth Objects.

Section 322 requires the Administrator to continue to discover, track, catalogue, and characterize the physical characteristic of near-Earth objects equal to or greater than 140 meters in diameter in order to assess the threat of such near-Earth objects to Earth. It shall be the goal of the survey to achieve 90 percent completion of its near-earth object catalogue by 2020. This section reaffirms the policy in title 51 relating to detecting, tracking, cataloguing, and characterizing asteroids and comets. It requires the Administrator to transmit to Congress an initial report that provides the following: recommendations and a proposed budget to carry out the Survey program; an analysis of possible options NASA could employ to divert an object on a likely collision course with Earth; and a description of the status of efforts to coordinate and cooperate with other countries to discover hazardous asteroids and comets, plan a mitigation strategy, and implement that strategy. This section further requires the Administrator to transmit an annual report that provides a summary of all activities and expenditures taken with regards to the Survey since the enactment of this act.

Sec. 323 – Astrobiology Strategy.

This section would require the Administrator to contract with the National Academies to develop a science strategy for astrobiology to guide NASA roadmaps, strategic plans and other activities.

Sec. 324 – Public-Private Partnerships

This section requires a report to Congress describing how NASA can expand collaborative public-private partnerships to study life's origin, evolution, distribution, and future in the Universe.

Subtitle D –Heliophysics

Sec. 331 - Decadal Cadence.

This section states that the Administrator shall ensure a steady cadence of large, medium, and small heliophysics missions when following the guidance provided by the decadal surveys.

Sec. 332 – Review of Space Weather.

This section requires the Director of OSTP to contract with the National Academies to provide a comprehensive study that reviews planned space weather monitoring requirements and capabilities to inform future space weather monitoring.

Sec. 333 – Deep Space Climate Observatory

Section 333 prohibit the Administrator from integrating or funding the development of any sensor on the Deep Space Climate Observatory not aligned with the spacecraft's original space weather mission requirements. This section prohibits NASA from developing or implementing

algorithms or any other application or product that are not aligned with the Deep Space Climate Observatory mission's intended space weather requirements, or that enables the "Earth at noon" images from the spacecraft.

Subtitle E – Earth Science

Sec. 341 – Goal

Section 341 states that the Administrator shall continue to develop first of a kind instruments that can be transitioned to other agencies for operations. This section requires the Administrator to conduct research and development on new sensors and instruments that will mitigate the risks associated with the development of operational systems and long term data continuity requirements by other agencies. This section also adds language stating that NASA is not responsible for long term data continuity or the development of operational systems, including satellite, sensor, or instrument development, acquisition, and operations, as well as product development and data analysis, unless such work is conducted on a reimbursable basis that accounts for the full cost of the work. It further requires that NASA shall use the existing Joint Agency Satellite Division structure to manage this process on a fully reimbursable basis.

Sec. 342– Decadal Cadence.

This section states that the Administrator shall ensure a steady cadence of large, medium, and small Earth Science missions when following the guidance provided by the decadal surveys.

Sec. 343 – Research to Operations.

This section prevents the transfer of operational responsibility of science and space weather mission or sensors to NASA without authorization by Congress.

Sec. 344 – Interagency Coordination.

Section 344 amends the law to require coordination with other Federal agencies in addition to NOAA.

Sec. 345 – Joint Polar Satellite System Climate Sensors.

This section states that NASA shall not be responsible for the development of Joint Polar Satellite System climate sensors, and that any effort by NASA related to this work will be conducted on a fully-reimbursable basis, and executed by NASA's Joint Agency Satellite Division.

Sec. 346 – Land Imaging.

This section requires the Director of OSTP to take steps to ensure the continuous collection of space-based medium-resolution observations of the Earth's land cover with the data available to facilitate the widest possible use. This section prevents the Administrator from initiating the definition of land imaging capabilities unless this work is conducted on a fully-reimbursable basis, and executed by NASA's Joint Agency Satellite Division.

Sec. 347 – Sources of Earth Science Data.

This section directs the Administrator to acquire space-based and airborne Earth remote sensing data, services, distribution, and applications from a commercial provider. It requires that

acquisition be carried out in accordance with applicable laws and regulations. This section also requires a report to Congress on NASA's efforts to utilize this authority.

TITLE IV- AERONAUTICS

Sec. 401 - Sense of Congress.

This section states that it is the sense of Congress that a robust aeronautics research portfolio will help maintain the United States' status as a leader in aviation. This section would state that aeronautics research is essential to NASA's mission and that the Administrator should coordinate with other stakeholders to minimize duplication and leverage resources.

Sec. 402 - Unmanned Aerial Systems Research and Development.

Section 402 requires the Administrator to direct research and technological development to facilitate the safe integration of unmanned aerial systems into the National Airspace System. This section requires the Administrator to update and transmit to Congress a roadmap for unmanned aerial systems research and development. This section requires that operational flight data from specified cooperative agreements be made available to NASA and the FAA for the development of regulatory standards.

Sec. 403 - Research Program On Composite Materials Used In Aeronautics.

This section states that the Administrator, in overseeing NASA's Integrated Systems Research Program's work on composite materials, shall consult with relevant Federal agencies and partners in industry to accelerate safe development and certification processes for new composite materials and design methods while maintaining rigorous inspection of new composite materials. This section requires the Administrator to transmit to Congress a report detailing the work of NASA on new composite materials and the coordination efforts between agencies.

Sec. 404 - Hypersonic Research.

This section requires the Administrator to develop and transmit to Congress a roadmap for hypersonic aircraft research.

Sec. 405 – Supersonic Research.

Section 405 requires the Administrator to develop and transmit to Congress a roadmap for supersonic aeronautics research and development with the goal of developing and demonstrating, in a relevant environment, airframe and propulsion technologies to minimize the environmental impact of supersonic overland flight in an efficient and economical manner.

Sec. 406 - Research On NextGen Airspace Management Concepts And Tools.

This section requires the Administrator, in consultation with the Director of FAA's Joint Planning and Development Office, to review NASA's research and development activities in support of NextGen and make any necessary adjustments to NASA's research and development activities in support of NextGen. This section also requires the Administrator to report to Congress regarding the progress of NASA's research and development activities in support of the NextGen airspace management modernization initiative, including details of consultation with the FAA and any adjustments made to research activities.

Sec. 407 - Rotorcraft Research.

This section requires the Administrator to prepare and transmit to Congress a plan for research relating to rotorcraft and other runway-independent air vehicles. The plan must include specific goals for the research, a timeline for implementation, metrics for success, and guidelines for collaboration and coordination with industry and other Federal agencies.

TITLE V - SPACE TECHNOLOGY**Sec. 501 - Space Technology Program.**

This section creates a Space Technology Program within the office of the Administrator to pursue the development of technologies that enable exploration of the solar system or advanced space science through various elements of NASA. This section also states that the Administrator shall organize and manage NASA's Small Business Innovation Research program and Small Business Technology Transfer program within the Space Technology Program. Finally, this section requires the Administrator to certify that no project within the Space Technology Program is also under development in any established mission directorate.

TITLE VI - EDUCATION AND OUTREACH**Sec. 601- Education.**

This section states that NASA must continue its education and outreach efforts to: increase student interest and participation in STEM education; improve public literacy in STEM; employ proven strategies for improving student learning and teaching; provide curriculum support materials; and create and support opportunities for professional development for STEM teachers. It requires NASA to continue its STEM education and outreach activities within the Missions Directorates. This section requires that funds for education and public outreach be maintained in the Directorates, and prohibit their consolidations into the Education Directorate. This section prohibits NASA from implementing any proposed STEM education and outreach related changes proposed in the budget for FY 2014.

TITLE VII- Other Provisions**Sec. 701 – Asteroid Retrieval Mission.**

Section 701 prohibits the Administrator from funding the development of any asteroid retrieval mission to send a robotic spacecraft to a near-Earth asteroid for rendezvous, retrieval, and redirection of that asteroid to lunar orbit for exploration by astronauts. This section prohibits the Administrator from pursuing a program to search for asteroids of 20 meters or less in diameter until the survey program described in section 322 is at least 90 percent complete. This section also requires the Administrator to report to Congress on the proposed Asteroid Retrieval Mission including a detailed budget profile, a detailed technical plan, a description of the technologies and capabilities anticipated to be gained that will enable future missions to Mars that could not be gained by lunar missions, and a review by the Small Bodies Assessment Group and the NASA Advisory Council.

Sec. 702 - Termination Liability

This section directs that funds set aside for contract termination liability be utilized toward development work.

Sec. 703 - Indemnification Extension.

This section extends indemnification for the space launches until December 31, 2018.

Sec. 704 - Baseline and Cost Controls.

This section amends requirements associated with Baseline and Cost Controls to make the reporting more timely.

Sec. 705 - Project and Program Reserves.

This section requires the Administrator to report to Congress on NASA's criteria for establishing the amount of reserves at the project and program levels and how such criteria complement NASA's policy of budgeting at a 70 percent confidence level.

Sec. 706 - Independent Reviews.

Section 706 requires the Administrator to report to Congress on NASA's procedure for independent reviews of projects and programs at lifecycle milestones and how NASA ensures the independence of the individuals conducting those reviews.

Sec. 707 - Space Act Agreements.

This section would set the following conditions for Space Act Agreements:

- Funds provided by the government under a funded Space Act Agreement should not exceed the total amount provided by other parties to the agreement or other transaction;
- A Space Act Agreement may be used only when the use of a standard contract, grant, or cooperative agreement is not feasible or appropriate;
- Space Act Agreements must be available for public notice and comment prior to agreement;
- The Administrator shall publically disclose on NASA's website and make available in a searchable format all Space Act Agreements with appropriate redactions for proprietary information in a timely manner;
- The Administrator shall not enter into any funded Space Act Agreements in excess of \$50 million unless such an agreement has been specifically authorized by law;
- The Administrator must submit to Congress an annual report on the use of Space Act Agreement authority by NASA during the previous fiscal year. The report must also include a list of anticipated agreements for the upcoming fiscal year.

Sec. 708 - Human Spaceflight Accident Investigations.

This section adds vehicles being used by the Federal Government pursuant to a contract or Space Act Agreement to the list of vehicles covered by the investigative provision.

Sec. 709 - Commercial Technology Transfer Program.

This section adds “protecting national security” to the considerations used in evaluating technology transfer.

Sec. 710 - Orbital Debris

This section requires the Administrator to report to Congress on efforts to coordinate with countries within the Inter-Agency Space Debris Coordination Committee to mitigate the effects of orbital debris as required by law. This section requires the Director of OSTP to report to Congress on the status of the orbital debris mitigation strategy required by law.

Sec. 711 – NASA Leadership

This section states that the Administrator shall serve a six year term and may be reappointed, and that in the Administrator’s absence, the Deputy Administrator shall not act as Administrator for a period of more than 45 days. After 45 days, the Associate Administrator shall exercise the powers of Administrator until a new Administrator is confirmed.

Sec. 712 – NASA Advisory Council

Section 712 establishes the NASA Advisory Council and set guidelines for appointing its members. This section also establishes criteria for membership on the Council, set the terms of such membership, set requirements for meetings of the Council, and describes its internal leadership. This section requires the Administrator to provide the Council with staff. This section states that the functions of the Council are as follows: to review the Administration’s budget proposal and provide advice to the President, to advise the Congress on the budget, and to report their findings, advice, and recommendations to the President and Congress on matters of policy related to space exploration and aeronautics.

Sec. 713 – Cost Estimation

This section requires a report to Congress on the implementation of more effective cost estimation practices.